

CLAIMS

We Claim:

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1. A thermally curable hot-melt adhesive composition, comprising
 - a polyurethane prepolymer having isocyanate groups, wherein at least 50 % of the reactive isocyanate groups of the prepolymer are blocked, said prepolymer being the reaction product of
 - (1) 20 to 40 wt% of at least one straight-chain amorphous polyester having a number average molecular mass M_n of 3000 to 6000 with
 - (2) 40 to 60 wt% of at least one polyurethane elastomer,
 - 15 (3) 10 to 20 wt% of at least one polyester elastomer,
 - (4) at least one diisocyanate,
 - (5) at least one polyol as a chain extender, and
 - (6) at least one blocking agent; and
 - at least one isocyanate reactive component selected from the group consisting of polyalcohols, polyamines and hydroxy-functionalized epoxide resins;wherein the percentages are based on the total weight of polyester, polyurethane elastomer and polyester elastomer.
- 25 2. The adhesive of claim 1 wherein the prepolymer having isocyanate group is obtained from a reaction mixture comprising
 - (1) 25 to 35 wt% of at least one straight-chain amorphous polyester having a number average molecular mass M_n of 3000 to 6000 with
 - 30 (2) 40 to 60 wt% of at least one polyurethane elastomer,
 - (3) 10 to 15 wt% of at least one polyester elastomer,
 - (4) at least one diisocyanate,
 - (5) at least one polyol as a chain extender, and

(6) at least one blocking agent;

wherein the percentages are based on the total weight of polyester, polyurethane elastomer and polyester elastomer.

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3. The adhesive of claim 1 wherein the straight-chain amorphous polyesters are obtained by reacting an acid component selected from the group consisting of aliphatic, cycloaliphatic aromatic dicarboxylic acids, the derivatives thereof and any mixtures thereof, with diols having short chains.

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4. The adhesive of claim 1 wherein the polyesters are straight-chain amorphous copolyesters having a glass transition temperature of 0 to 60°C.

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5. The adhesive of claim 1 wherein the polyurethane elastomers is a semi-crystalline polyurethane elastomer with a softening point between 60 to 120°C.

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6. The adhesive of claim 1 wherein the polyester elastomer has a softening point of 190 to 260°C.

7. The adhesive of claim 6 wherein the polyester elastomer is selected from the group consisting of polyethylene terephthalates, polybutylene terephthalates and modified polybutylene terephthalates.

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8. The adhesive of claim 1 wherein the isocyanate reactive component is selected from the group consisting of hexanediol-1,6, decanediol-1,10, dodecanediol-1,12, ethoxylated Bisphenol-A, propoxylated Bisphenol-A, hydroxy functional epoxy resins based on epichlorohydrin and Bisphenol A having an epoxy equivalent weight

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of 185 to 550, hexamethylene diamine, isophorone diamine and polyaminoamides.

- 5 9. The adhesive of claim 1 wherein the weight ratio of isocyanate to hydroxyl or amine is from 1:0.5 to 1:1.5.
- 10 10. The adhesive of claim 1 comprising black pigments selected from the group consisting of iron oxide, carbon black, graphite and black dyes in an amount of 0.05 to 2.5wt%.
11. Coated pieces wherein the pieces are pre-coated with the adhesive of claim 1.
- 15 12. A process for coating pieces comprising applying the adhesive of claim 1 directly after the manufacture of the piece.
- 20 13. A process for pasting pieces together which comprises applying an adhesive layer of the adhesive composition of claim 1 to a first piece and bringing a second piece into contact with the adhesive layer of said first piece.